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AUTHOR Mahon, Jack
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ABSTRACT

The effects of Bucks County Community College (BCCC) on the local economy during fiscal year (FY) 1979 were investigated in terms of the monies spent in operating BCCC through purchases of goods and services, salaries to college employees, student financial aid expenditures, veterans' benefits, and property taxes paid by college employees, as well as jobs generated as a result of these expenditures. The study revealed that BCCC generated approximately $8 million in local business volume, about 75% of which was directly attributable to BCCC through the expenditures of the college, its employees, and students. The remaining $2 million was generated by the added local business volume stimulated by the expenditure of college-related income. BCCC collected $13,959,804 in revenues in FY 1979; of this, Bucks County contributed $3.3 million. Of the $4,744,027 spent on the purchase of goods and services, $454,556 went to local vendors. BCCC faculty and staff bought 70% of their non-housing budget items in Bucks County, thereby spending a total of $3,419,272. They also generated $200,857 in property taxes. The business volume attributed to BCCC produced another $206,738 in business property taxes, while the college's property tax exemption was about $67,248. BCCC generated 1,290 full-time jobs in FY 1979; 645 full-time equivalent positions were held by college faculty, staff, and students. (Author/AYC)

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THE ECONOMIC IMPACT OF BUCKS COUNTY COMMUNITY COLLEGE ON THE LOCAL ECONOMY DURING FISCAL YEAR 1978-79

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JACK MAHON

OFFICE OF RESEARCH AND PLANNING

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PURPOSE AND SCOPE OF STUDY

The primary purpose of this study is to describe the effects of Bucks County Community College on the local economy during the 1978-79 fiscal year.

An economic impact study attempts to quantify the major economic interrelationships that exist between Bucks County and Bucks County Community College. The economic impacts of BCCC on the County will fall primarily into three areas: changes in the local business volume, local property tax revenues and jobs.

Any college has many types of impact upon its local community. Institutions of higher education have primarily been designed to work effectively with the academic, cultural and social impacts of its offerings upon the students and the community in which it resides. These impacts would be considered central to the purpose of that college. Bucks County Community College attempts to document these impacts through its follow-up studies of graduates and other reports completed upon both graduates and non-graduates after they have had some contact with this institution.

The economic impacts studied in this report are current and short-range. Much has been published on the long-range economic benefits and increased production that result from better educated citizens. Oftentimes the result is an increase in salaries for the individuals and society benefits from a higher standard of living that over a long-term period of time will generate higher spending levels and also increase tax revenues. One might refer to that type of analysis as the investment analysis of the benefits of higher education. While those studies are very legitimate and are necessary for long-term planning with respect to the future of higher education in our society, it is not the primary purpose of this study and will not be included.

This study is primarily concerned with the economic impact of the monies spent in operating BCCC over the 1978-79 fiscal year through purchases of goods and services, salaries to college employees, student financial aid expenditures, veterans' benefits, property taxes paid by college employees and jobs generated as a result of these expenditures.

The results obtained in this study can legitimately be considered to be conservative estimates of the economic impacts that this College has had. First, the entire range of noneconomic impacts have not been included in this study. Second, there has not been any attempt to analyze the impact of savings by college employees upon lending institutions in terms of available loans, credit or mortgage money to other citizens in Bucks County. Third, no attempt was made to estimate the local expenditures of those college employees who reside outside Bucks County. Fourth, the economic impacts studied relate only to Bucks County. The impact of college-generated funds which are spent out-of-county and nonlocal tax revenues attributable to BCCC are not included.

Office of Research and Planning

October 1979

HIGHLIGHTS

For the fiscal year ending June 30, 1979, Bucks County Community College generated approximately $8 million in local business volume. Approximately three-fourths of these local purchases are directly attributable to the College through the expenditures of the college, its employees and students. The remaining $2 million is generated by the added local business volume stimulated by the expenditure of college-related income.

Bucks County Community College collected $13,959,804 in revenues in FY 1979. Bucks County contributed $3.3 million to the College's revenue over that period. The College spent $4,744,027 on the purchase of goods and services and $454,556 of these purchases were made from local vendors. Local expenditures by BCCC faculty and staff totalled $3,419,272. This figure is based on the estimate that faculty and staff who reside locally buy 70% of their non-housing budget items in Bucks County. Additionally, financial aid students and enrolled veterans spent an estimated $2,096,130 from financial aid awards and veterans' benefits in the local economy during 1978-79.

Full-time faculty and staff also generated $200,857 in property taxes in Bucks County. In addition, the business volume attributed to BCCC produced another $206,738 in business property taxes. On the other side of the ledger, the value of the College's property tax exemption is estimated as about $67,248.

Lastly, the impact of BCCC on local employment is estimated to have totalled 1290 full-time jobs in FY 1979. Of this total, 645 are full-time equivalent positions held by college faculty, staff and students; the remaining 645 local jobs are full-time positions in Bucks County stimulated by local college-related business volume.

It is reasonable to assume that if Bucks County did not have the community college, some of the economic impact reported in this study would be diverted to other counties and municipalities where other colleges exist.

STUDY FINDINGS

COLLEGE REVENUE INFORMATION

Bucks County Community College collected a total of $13,959,804 revenues in fiscal year 1979. Table 1 displays these College revenues by amount and major source.

Table 1

BCCC Revenues for FY 79 - By Source

Source	Amount	% of Total Revenues
Student Tuition & Fees	$3,744,438	27%
State Government	3,867,220	28%
Local Government	3,303,406	23%
Federal/State/Private Financial Aid	1,836,177	13%
College Auxiliary Enterprises	656,902	5%
Federal/State Grants	147,455	1%
Other	404,206	3%
TOTAL	$13,959,804	100%

College revenues are injected into the economy through salary payments to college employees and college purchases for goods and services. Of the College's $13.9 million revenue total for FY 1979, college purchases of goods and services totalled $4,744,027, $7,379,600 was paid to college employees in wages and salaries, and $1,759,081 was distributed as financial aid awards to eligible students.

LOCAL BUSINESS

The College is estimated to have generated $8,059,443 in local business volume during FY 1979. This total includes the direct expenditures of the College, its faculty and staff, financial aid students, veterans and the additional income stimulated by these initial expenditures.

$(E_L)_C$ =	Local expenditures by the College	$ 454,556
$(E_L)_F$ =	Local expenditures by faculty and staff	$3,419,272
$(E_L)_S$ =	Local expenditures by financial aid students	$1,056,875
$(E_L)_V$ =	Local expenditures by veterans	$1,039,255
$(BV_I)_{CR}$ =	The business volume stimulated by the expenditures of college-related income by local individuals other than faculty, staff or students.	$2,089,485
BV_{CR} =	College-related local business volume	$8,059,443

Local Expenditures by the College $(E_L)_C$

Local college purchases are dependent on the total amount of college expenditures of goods and services made from local vendors. Non-salary expenditures in FY 79 totalled $4,744,027.

A thorough review of all records of the BCCC Purchasing Office was made. Vendors and purchase amounts were classified as in-county or out-of-county. The result of this investigation indicated that during 1978-79 BCCC spent a total of $454,556 for the purchase of goods and services from Bucks County vendors.

LOCAL BUSINESS

$(E_L)_C$ = Local College Purchases for Goods and Services $454,556

Two qualifications need to be stated regarding the College's local business volume. First, it should be noted that $1,104,850 of this $4,744,027 was expended as debt service for contractual payments made to the Bucks County Community Authority for the retirement of bonds.

Second, the College has very little control over the amount of purchases from local vendors because all purchases of significant volume are subject to public bid. College policy stipulates that purchases of $500 to $2500 require a minimum of two written bids. Purchases over $2500 must be advertised for bid according to County rules and regulations.

Local Expenditures by Faculty and Staff $(E_L)_F$

This section estimates the impact of college faculty and staff on local business volume. The expenditure patterns of individual households were derived from Three Standards of Living for an Urban Family of Four Persons. This annual publication of the U.S. Bureau of Labor Statistics presents a high, low and intermediate household budget. The expenditures of households for housing and non-housing items can be estimated from this information.

In order to estimate the proportion of faculty and staff expenditures spent in the local area, the Computer Center provided the study with a listing of college employees by zip code and annual wages. All college employees residing locally were then divided into high, low and intermediate household budgets based upon their annual wages from the college. For those faculty and staff residing locally, expenditures were divided into housing and non-

housing purchases according to the household budget level. The proportion of non-housing purchases made locally by college employees living in Bucks County was estimated by the retail gravity model.

(For those faculty and staff not residing locally, no attempt was made to estimate their local expenditures in the non-housing category. It is reasonable to expect some expenditures by these employees in the local area, but there did not exist any reliable means to assess this. Once again, this reflects the conservative nature of this impact study.)

The retail gravity model determines the probability of making a local purchase given the retail drawing power of the surrounding communities. The gravity model describes the surrounding communities as those counties between New York City and Philadelphia. The retail sales of the counties in the New York-Philadelphia corridor were obtained from Sales Management Magazine's Annual Survey of Effective Buying Power.

In the formula presented below, it was estimated that college employees residing locally spent $997,438 in housing expenditures and $3,459,763 in non-housing expenditures in FY 1979. The retail gravity model estimated that 70% of those non-housing expenditures were made in Bucks County.

Local Expenditures by Local Faculty and Staff $(E_L)_F$ = Housing Expenditures + Non-Housing Expenditures X (% of local non-housing expenditures)

$(E_L)_F$ = $997,438 + $3,459,763 (.70)

= $3,419,272

Local Expenditures by Financial Aid Students $(E_L)_L$ and by Enrolled Veterans $(E_L)_V$

Financial aid students received a total of $1,759,081 in financial aid awards from federal, state and private sources during 1978-79. The expenditure patterns for these students were derived from Three Standards of Living for an Urban Family of Four Persons, utilizing the lower family income model. The proportion of

student spending done locally is generated by the retail gravity model.

In the formula presented below it was estimated that financial aid students spent $300,952 in housing expenditures and $1,079,890 in non-housing expenditures in FY 1979. The retail gravity model estimated that 70% of these non-housing expenditures were made in Bucks County.

Local Expenditures = Housing Expenditures + Non-Housing Expenditures X (% of local non-housing expenditures)
by Local Students $(E_L)_S$

= $300,952 + $1,079,890 (.70)

= $1,056,875

During the 1978-79 fiscal year veterans attending Bucks County Community College received an estimated $1,826,460 in veterans' benefits (G.I. Bill). The expenditure patterns for these students were derived from the Three Standards of Living for an Urban Family of Four Persons, utilizing the intermediate income model. The proportion of student spending done locally is generated by the retail gravity model.

In the formula presented below, it was estimated that enrolled veterans spent $310,498 on housing expenditures and $1,041,082 on non-housing expenditures in FY 1979. The retail gravity model estimated that 70% of those non-housing expenditures were made in Bucks County.

Local Expenditures = Housing Expenditures + Non-Housing Expenditures X (% of local non-housing expenditures)
by Enrolled Veterans $(E_L)_V$

= $310,498 + $1,041,082 (.70)

= $1,039,255

Local Business Volume Stimulated by the Local Purchase of BCCC, Its Faculty, Staff and Students (The Multiplier Effect)

The local expenditures of the College, faculty, staff and students are directly responsible for a $5,969,958 increase in Bucks County business volume. The multiplier measures the indirect effect of these expenditures or the extent to which local spending is stimulated in response to an initial change in business volume. The size of the multiplier for Bucks County is dependent on the proportion of personal income spent on local comsumption and the percentage of business spending done in-county.

The proportion of personal income spent on local comsumption was computed by combining the Three Standards of Living for an Urban Family for Four Persons with the income distribution for BCCC households to yield a "consensus" family budget for the college. The proportion of personal income spent on consumption items (housing and non-housing) is computed to be 74% for BCCC employees, financial aid recipients and veterans. The proportion of consumption made by Bucks County Community College employees residing in the county was determined by the retail gravity model as being 70%.

The proportion of business spending done in-county is estimated as 50%, based on advice from the Wharton Econometric Forecasting Associates.

The calculation of the multiplier as developed in The Economic Impact of Mercer County Community College on the Local Community is shown below:

$$Mi = 1 \div [1 - (\text{proportion of personal income spent in the local area}) \times (1 - \text{proportion of business spending going out-of-county})]$$

$$= 1 \div [1 - (.74)(.70)(1 - .5)]$$

$$= 1.35$$

Applying this multiplier to the $5,969,958 increase in business volume directly attributed to local expenditures by the College, faculty, staff and students, the total college-related local business volume amounts to $8,059,443.

LOCAL GOVERNMENT

Local governments collected $407,595 in property tax revenues in 1978-79 which can be attributed to the presence of BCCC. $200,857 of this total was contributed by faculty and staff residing in Bucks County. The remaining $206,738 was generated by local business properties impacted by college-related expenditures. This section also estimates that the College's tax exemption was worth $67,248 in 1978-79.

COLLEGE-RELATED REVENUES RECEIVED BY LOCAL GOVERNMENTS (G-1)

Local Faculty and Staff (R_{RE})F

The property taxes generated by local faculty and staff are estimated by computing the average property tax bill paid by local households and applying this average to the number of full-time college employees residing locally. The property taxes paid by local individuals for housing include both residential and farm taxes. Since property values and general tax rates vary widely across Bucks County, data for this model was aggregated at the tax district level.

The Bucks County Tax Assessment Office provided 1978-79 data on the assessed valuation of all residential and farm properties in the county, and the general tax rate for each township and municipality. The total number of households in each taxing jurisdiction was derived from the tax rolls. The number of full-time faculty and staff residing in each locality was obtained from institutional records.

No attempt was made to assess the earned income and occupation taxes paid to local governments by full-time college employees residing locally.

TAX DISTRICT	PROPERTIES OF FULL-TIME FACULTY AND STAFF	AVERAGE TAX PER PROPERTY	ESTIMATED PROPERTY TAXES PAID BY BCCC FACULTY AND STAFF
Bensalem Twp.	15	$ 687	$10,309
Bristol Boro	2	495	991
Bristol Twp.	13	825	10,725
Buckingham Twp.	6	1,028	6,170
Chalfont Boro.	1	849	849
Doylestown Boro.	8	816	6,528
Doylestown Twp.	5	984	4,919
East Rockhill Twp.	1	375	375
Falls Twp.	11	709	7,796
Haycock Twp.	1	395	395
Hilltown Twp.	3	562	1,686
Ivyland Boro	2	902	1,803
Langhorne Boro	3	894	2,681
Langhorne Manor Boro.	2	935	1,870
L. Makefield Twp.	12	1,218	14,616
L. Southampton Twp.	11	850	9,349
Middletown Twp.	25	780	19,493
Morrisville Boro.	2	792	1,583
New Britain Twp.	2	709	1,418
New Hope Boro	2	829	1,658
Newtown Boro	14	1,055	14,771
Newtown Twp.	14	678	9,485
Northampton Twp.	22	1,009	22,205
Penndel Boro	4	751	3,006
Plumstead Twp.	6	610	3,659
Solebury Twp.	12	853	10,240
Tinicum Twp.	5	513	2,563
U. Makefield Twp.	3	1,116	3,348
U. Southampton Twp.	6	1,194	7,166
Warminster Twp.	4	1,145	4,582
Warrington Twp.	5	683	3,413
Warwick Twp.	2	799	1,597
Wrightstown Twp.	5	703	3,517
Yardley Boro	7	870	6,091
TOTALS	236		$200,857

College-Related Local Business (R_{RE})$_{CB}$

Real estate taxes attributed to college-related local business is estimated by computing the proportion of total county business volume attributed to the College and applying this percentage to the total property taxes paid by local business concerns. The amount of local volume attributed to the College was estimated as $8,059,443. Total business volume in Bucks County was derived from wholesale, retail and manufacturing data published in the U.S. Economic Census, Sales Management Magazine and the Annual Survey of Manufacturer's, respectively. The total amount of business property taxes paid in the County includes both industrial and commercial properties; this information was also provided by the Bucks County Tax Assessment Office.

$$\text{College-Related Local Business Taxes} = \frac{\text{College-Related Local Business Volume}}{\text{Total Local Business Volume}} \times \text{Total Local Business Taxes}$$

$$= \frac{\$8,059,443}{\$1,870,340,000} \times \$48,078,540$$

$$= \$206,738$$

REAL ESTATE TAXES FOREGONE THROUGH THE COLLEGE'S TAX EXEMPT STATUS (R_{RE})$_{C}$

Any estimate of the value of BCCC's tax exempt status is hypothetical in nature because the land on which the College is located might have been put to any number of uses. We assumed that the College's land would have been developed similarly to other land in Newtown Township.

The total assessed value of land and improvements in Newtown Township was gained from the Bucks County Tax Assessment Office.

All classes of property are included in these calculations - residential, apartment, industrial and commercial. Lastly, the amount of acreage occupied by the College is applied to the Property tax per acreage in Newtown Township.

The method described above is illustrated in the following calculation:

		Newtown Township
1.	Total Assessed Value of Land & Improvements	$16,259,360
2.	Property Tax Rate	140.62
3.	Total Property Tax (1) X (2)	$2,286,391
4.	Total Taxable Acreage of Township	6,791.55
5.	Property Tax per Acre (3) ÷ (4)	336.65
6.	Size of College Property in Acres	199.756
7.	College Tax Exemption (5) X (6)	$67,248

LOCAL EMPLOYMENT

Local jobs attributed to BCCC include positions held by faculty, staff and students at the College, in addition to jobs generated by college-related business volume. Caffrey and Isaacs (Estimating the Impact of a College or University on the Local Economy) suggest a range of .00007 - .00009 man-years of employment per dollar of local expenditures. In other words, a change of one million dollars in local purchases increases local employment by 70 - 90 jobs. For the purpose of this study, 80 jobs per one million dollars of local purchases is used.

Applying the 80 jobs per one million dollars of local purchases to the previously discussed $8,059,443 in local business volume generated by BCCC in FY 1979, the local economy was stimulated by an estimated 645 additional jobs.

Full-time Faculty and Staff	426
Part-time Faculty (FTE's)[1]	53
Other Part-time Employees (FTE's)	11
Work-Study Students (FTE's)	155
Total Employment Positions at BCCC	645
Local Jobs Stimulated by College-Related Expenditures	645
Total Local Jobs Attributed to BCCC	1,290

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[1] Full-time equivalents